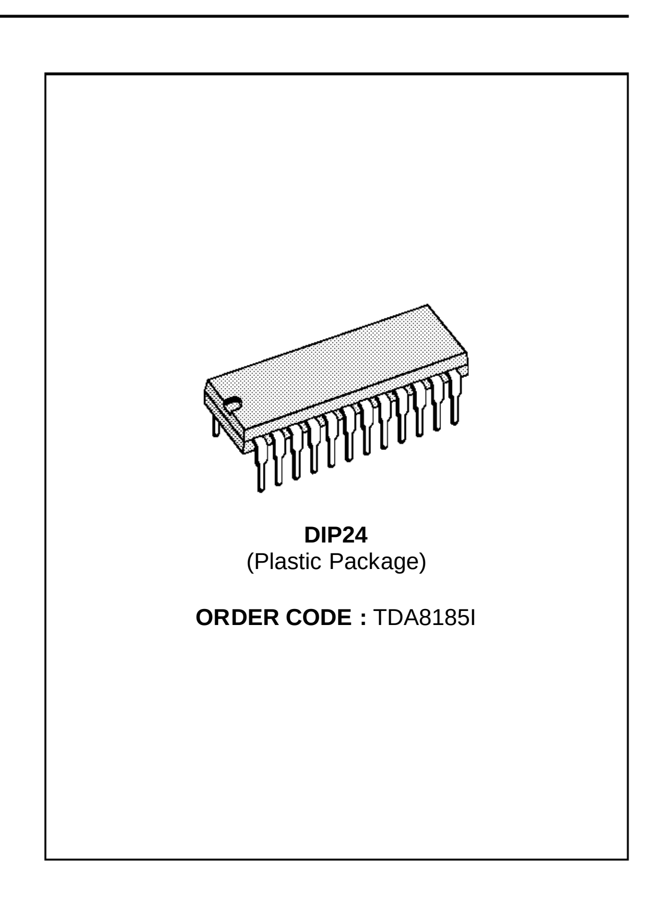


TDA8185I

HORIZONTAL AND VERTICAL PROCESSOR

- 503kHz REFERENCE OSCILLATOR
- 5.5V SUPPLY VOLTAGE INTERNALLY REGULATED
- VERY SOPHISTICATED SYNC. SEPARATOR
- COUNT DOWN TIMING LOGIC
- ADAPTS AUTOMATICALLY TO 625 LINE/50Hz AND 525 LINE/60Hz STANDARDS
- 50/60 Hz IDENTIFICATION OUTPUT
- AUTOMATIC VERTICAL AMPLITUDE CORRECTION 50/60Hz
- CRT PROTECTION CIRCUIT
- PHASE-CORRECTED HORIZONTAL OUTPUT WITH CONSTANT DUTY CYCLE



DIP24
(Plastic Package)

ORDER CODE : TDA8185I

DESCRIPTION

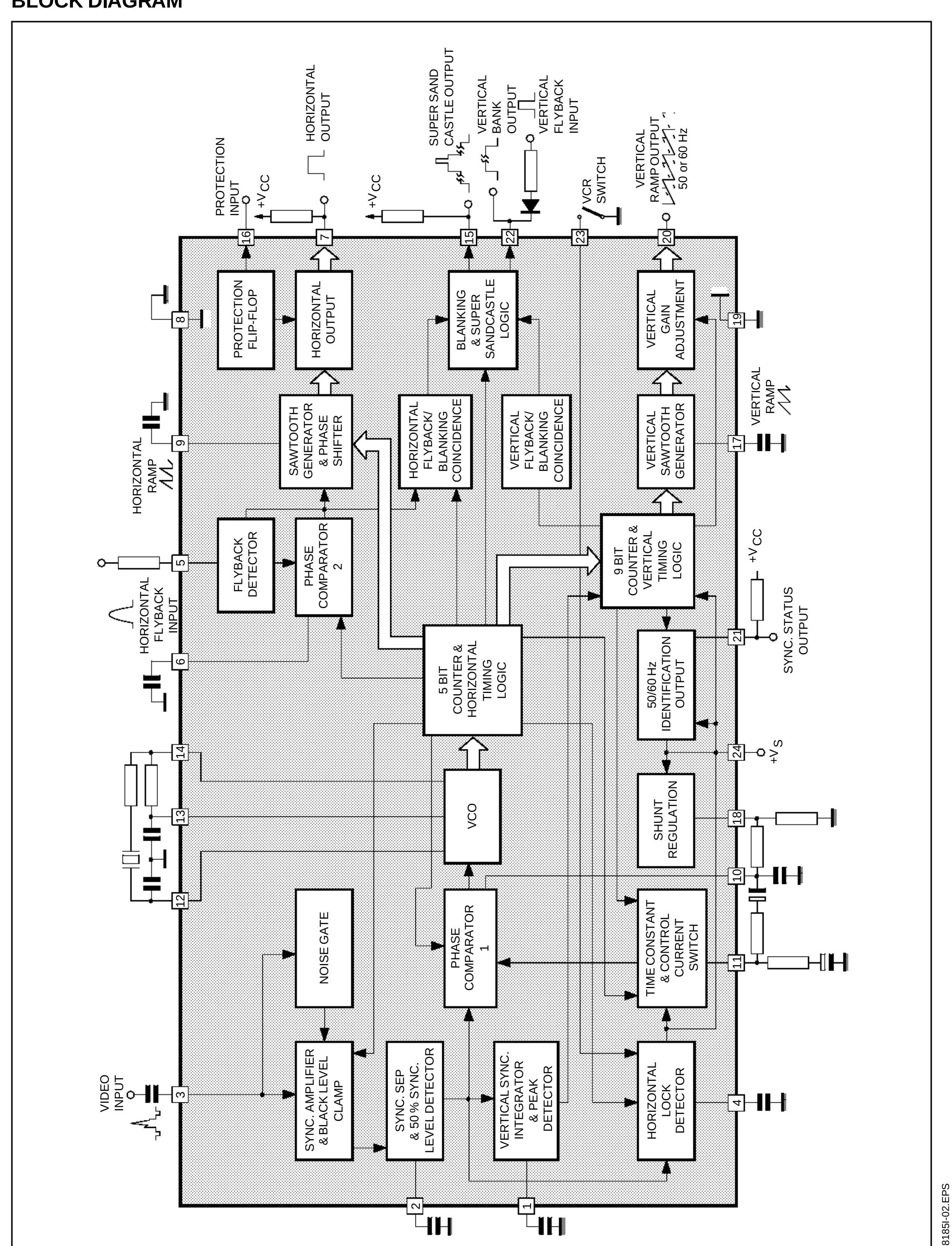
The TDA8185I is a monolithic integrated circuit in 24 pins dual in line plastic package intended for TV signal processing and driving Horizontal and Vertical output stages. It was specially designed for VCR working conditions.

PIN CONNECTIONS

Function	Pin	Pin	Function
PEAK DETECTOR	1	24	SUPPLY VOLTAGE
SYNC LEVEL	2	23	VCR SWITCH
VIDEO INPUT	3	22	VERTICAL BLANKING
VIDEO DETECTOR	4	21	SYNC STATUS
HORIZONTAL FLYBACK	5	20	VERTICAL SAWTOOTH OUTPUT
PHASE SHIFT FILTER	6	19	GROUND
HORIZONTAL OUTPUT	7	18	REFERENCE
GROUND	8	17	VERTICAL SAWTOOTH
HORIZONTAL SAWTOOTH	9	16	PROTECTION FLIP-FLOP
PHASE COMP 1 FILTER	10	15	SUPER SANDCASTLE
TIME CONSTANT SWITCH	11	14	OSC 3
OSC 1	12	13	OSC 2

8185I-01.EPS

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage at Pin 24 (low impedance)	5.25	V
V_{CC}	Voltage at Pins, 7, 15, 21	20	V
V_I	Input Signals	5	V
P_{tot}	Total Power Dissipation (T_{amb} = 70 °C)	1	W
T_j, T_{stg}	Storage and Junction Temperature	– 40 to 150	°C

8185I-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ j\text{–}pins}$	Thermal Resistance Junction-pins	Max	80	°C

8185I-02.TBL

ELECTRICAL CHARACTERISTICS

(V_S = 5 V, V_{CC} = 12 V, T_{amb} = 25 °C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage (pin 24)		4.75	5	5.25	V
I_s	Supply Current (pin 24)		30	60	85	mA
V_{24}	Stabilized Voltage at Pin 24			5.6		V
SYNC. SEPARATOR						
V_3	Peak to Peak Input Signal (negative video signal)		0.3	1	4	V
VIDEO IDENTIFICATION AND VCR SWITCH						
V_{23}	VCR Switch Voltage		1.6	2.1	2.4	V
V_4	Threshold Voltage for Time Constant Switching			2.3		V
I_4	Peak Output Current	Lock		1		mA
$-I_4$	Output Current			20		µA
OSCILLATOR						
F_O	Free Running Frequency			500		kHz
S_O	Frequency Control Sensitivity			1.0		kHz/V
V_{10}	Control Voltage Range			2.6 to 4		V
SYNC–OSCILLATOR PHASE COMPARATOR						
I_{10}	Control Peak Curent			± 0.3		mA
I_{10}	VCR Control Peak Current			± 0.6		mA
Δf	Catching and Holding Range			± 400		Hz
FLYBACK – OSCILLATOR PHASE COMPARATOR						
V_6	Control Voltage Range			2.8 to 3.7		V
I_5	Flyback Input Current		0.1			
	Flyback Input Threshold			5		mA
I_6	Peak Control Current			± 0.5		mA
	Static Control Error			1		%
t_d	Permissible Delay between Output Pulse and Flyback Pulse	$t_{flyback}$ = 12 µs		17		µs

8185I-03.TBL

ELECTRICAL CHARACTERISTICS (continued)

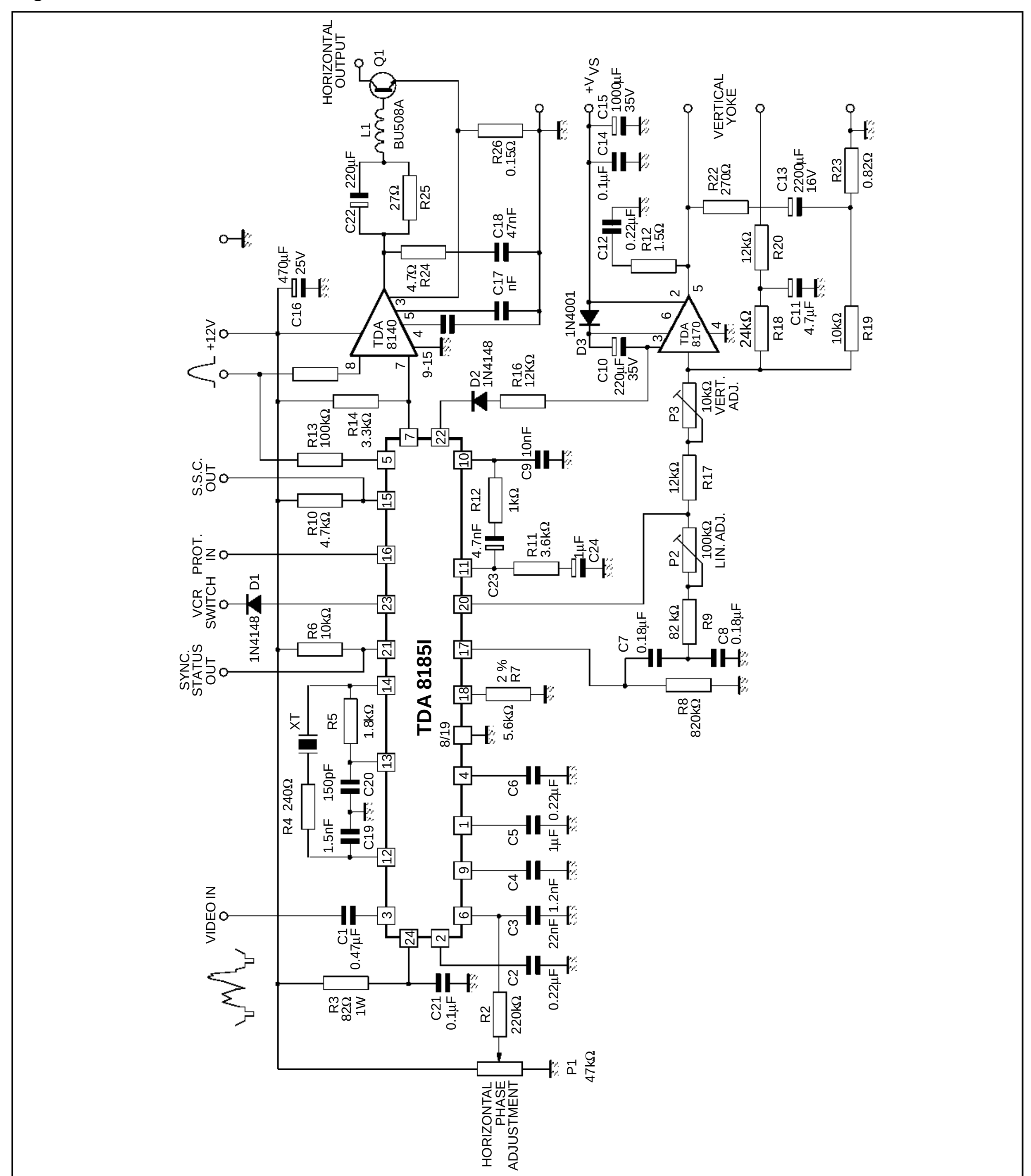
(V_S = 5 V, V_{CC} = 12 V, T_{amb} = 25 °C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
COMPOSITE BLANKING AND KEY PULSE (supersandcastle)						
V_K	Key Pulse Output Peak Voltage			10		V
V_L	Line Blanking Voltage		4.25	4.5	4.75	V
V_F	Frame Blanking Voltage		2.38	2.5	2.63	V
t_{KS}	Phase Relationship between Leading Edge of Key Pulse and Middle of Sync. Pulse			2.5		µs
t_K	Key Pulse Duration			4		µs
t_F	Vertical Blanking Duration			1.4		ms
FRAME						
V_{20}	Output p.p. Sawtooth Voltage	50Hz and 60Hz		2.7		V
V_{20}	Pedestal Voltage			0.3		V
LINE						
I_7	Output Current			50		mA
V_7	Saturation Voltage	I_7 = 50mA		0.4		V
t_L	Output Pulse Duration			29		µs
SYNC. STATUS OUTPUT						
V_{21}	Output Voltage	50Hz 60Hz Unlock	 6.25 	12 7 	 7.45 0.3	V V V
OVERALL PHASE RELATION SHIP						
t_O	Phase Difference between Middle of Flyback and Middle of Sync. Pulses			2		µs
VERTICAL BLANKING OUT AND FLY. INPUT						
V_{22}	Blanking Output Voltage			4		V
V_{22}	Flyback Threshold Input			5.7		V
I_{22}	Flyback Current Input		0.1			mA

8185I-04.TBL

Notes :
1. With t_{fly} = 12 µs and t_l = 29 µs.
2. The TDA8185I may be operated on a 5V supply directly. A 5.5 V shunt regulator is available internally for operation on higher supply voltage ; in this case an external limiting resistor is required.
   Without the external limiting resistor care must be taken to ensure that the supply voltage does not exceed 5.5V or the regulator will intervene and the device could be damaged.

Figure 1 : Horizontal and Vertical Deflections for 30AX C.R.T.

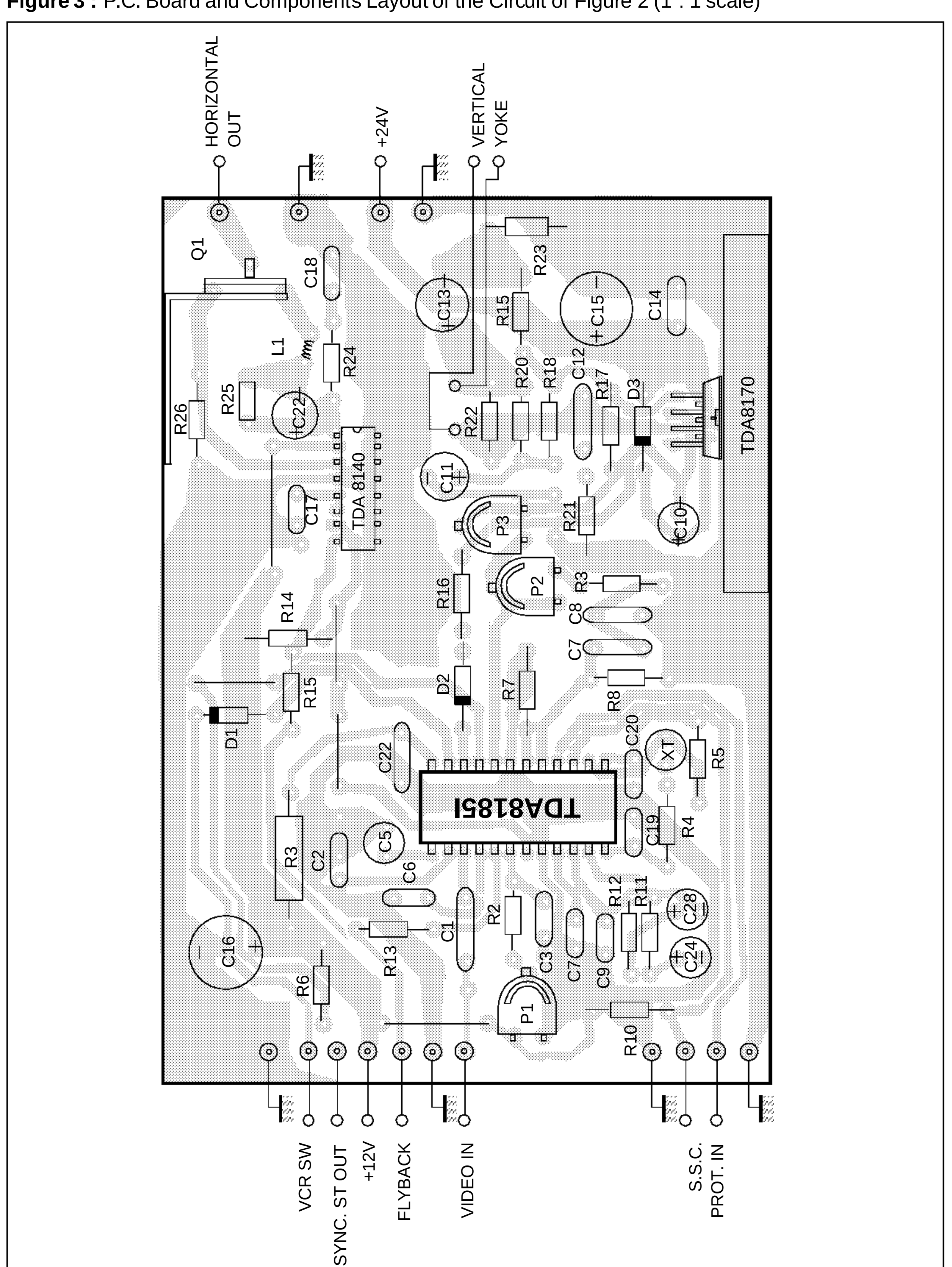


8185I-03.EPS

Figure 2 : Horizontal and Vertical Deflections for S4 C.R.T.

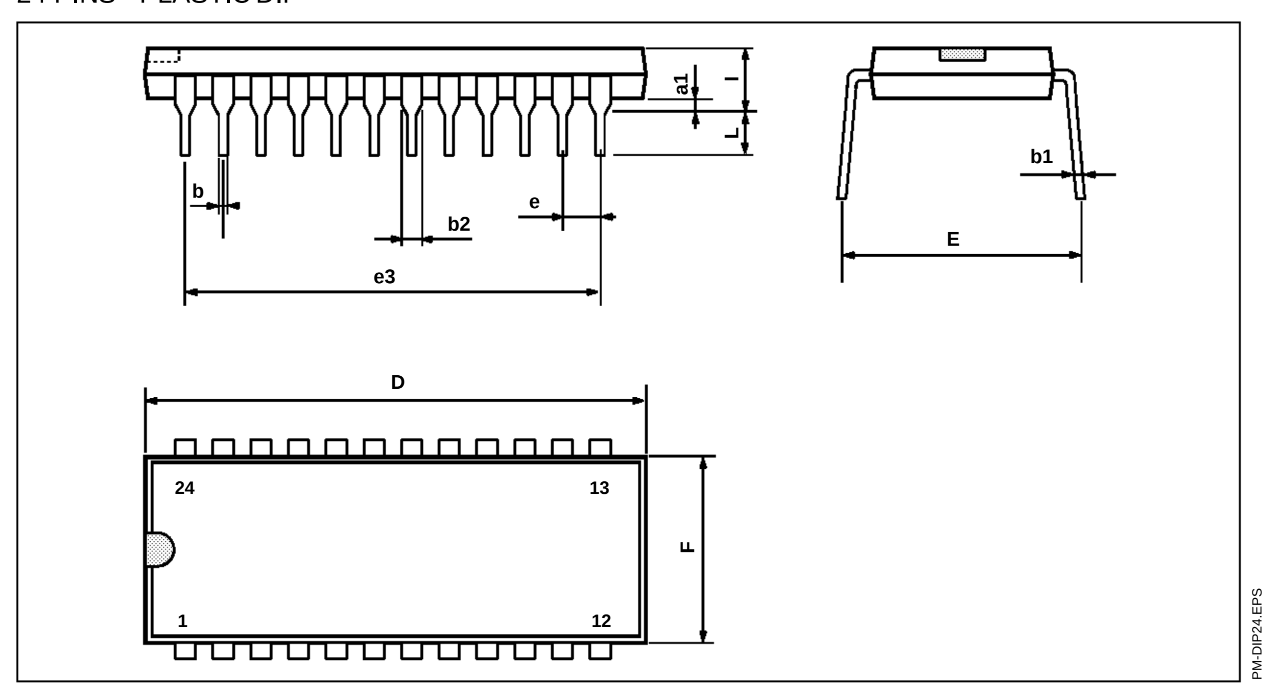
8185I-04.EPS

Figure 3 : P.C. Board and Components Layout of the Circuit of Figure 2 (1 : 1 scale)



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PACKAGE MECHANICAL DATA
24 PINS - PLASTIC DIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1		0.63			0.025	
b		0.45			0.018	
b1	0.23		0.31	0.009		0.012
b2		1.27			0.050	
D			32.2			1.268
E	15.2		16.68	0.598		0.657
e		2.54			0.100	
e3		27.94			1.100	
F			14.1			0.555
i		4.445			0.175	
L		3.3			0.130	

DIP24.TBL

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